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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER KETEMA, BENYAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/579,469	Applicant(s) SUZUKI ET AL.	
	Examiner BENYAM KETEMA	Art Unit 4146	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/15/2006, 10/03/2006, 11/01/2006, 11/18/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-14 are presented for examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. JP 2004-208624 and JP 2004-228787.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 05/15/2006, 10/03/2006, 11/01/2006 and 11/18/2008 have been considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (JP Publication No. 2001-022499)

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As to **Claim** 1, Suzuki et al. discloses a force feedback (Paragraph 1) apparatus comprising:

- *jetting means that includes a nozzle and that can control a jet amount or a jet direction of gas or liquid jetted from the nozzle (Paragraph 16 and 17);*
- *jet control means for controlling the jet amount or the jet direction of the gas or the liquid according to a position or an orientation of a receiver that receives a pressure by the gas or the liquid jetted from the jetting means so as to provide force feedback to an operator (Paragraph 5), wherein,*
- *the position or the orientation of the receiver is measured by receiver measurement means (Paragraph 5, line 4-5); wherein,*
- *when the receiver has a concave shape of a diameter D (Paragraph 12),*
- Suzuki et al. does not explicitly discloses *intervals for placing the nozzles in the jetting means are set such that at least one nozzle exists within a region having a diameter of a constant.times.D. However Suzuki's implicitly discloses intervals for placing the nozzles in the jetting means are set such that at least one nozzle exists within a region having a diameter of a constant.times.D. Because Suzuki et al. discloses of using a concave field so that a wind pressure can be caught efficiently as shown in paragraph 12. This implies that the intervals for placing the nozzle should have a diameter of constant times (D). Given that this placement would obviously allow for efficient capturing of the air blast, therefore it would have been obvious to one of ordinary skill in the art at the time of*

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the invention to modify the invention of Suzuki et al. by spacing the jetting nozzles so that at least one nozzle would be in direct proximity to the concave shaped receiving unit so that the wind pressure can be caught efficiently. Because Suzuki et al. suggests using a concave shaped receiving unit as being a more efficient way of catching air pressure that is coming out of the air nozzle, this will allow a person skilled in the art to space the nozzles apart according to the diameter of concave shaped receiving unit so that at least one nozzle will be under the concave shaped receiving unit.

As to **Claim 2**, Suzuki et al. discloses all recited limitation of independent claim 1, as described above from which claim 2 depends.

Suzuki et al. discloses *the force feedback (Paragraph 1) apparatus as claimed in claim 1, wherein the receiver has a hemispheric shape (Paragraph 12) and Suzuki et al. does not explicitly disclose the constant is 0.8.*

Suzuki et al. implicitly discloses in paragraphs 12 and 81 that the shape of the receiving unit could have different shape. Hence it would have been obvious to one of ordinary skill in the art at the time of the invention to use a concave shaped receiving unit (device) with constant 0.8 or 0.7 or any other value as it would have been design choice, with the motivation to measure a wind pressure in a virtual space and report said pressure measurement to the mobile operator (See Suzuki, paragraph 4).

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As to **Claim 3**, a force feedback (Paragraph 1) apparatus comprising:

- *jetting means that includes a nozzle and that can control a jet amount or a jet direction of gas or liquid jetted from the nozzle; ,*(Paragraph 5)
- *jet control means for controlling the jet amount or the jet direction of the gas or the liquid according to a position or an orientation of a receiver that receives a pressure by the gas or the liquid jetted from the jetting means so as to provide force feedback to an operator, wherein,*(Paragraph 5)
- *the position or the orientation of the receiver is measured by receiver measurement means; wherein*(Paragraph 5, line 4-5)
- *the nozzle includes nozzle open/close means for opening or closing in response to occurrence of a jet of the gas or the liquid, and wherein* (Paragraph 18)
- Suzuki et al. does not explicitly disclose a *point of support for opening and closing of the nozzle open/close means is provided on the side of the operator*. However it would have been obvious to one of ordinary skill in the art at the time of the invention to position a point of support for opening and closing unit of the air jet nozzle at any side of the operator. Since Suzuki et al. explicitly discloses that the operator has the flexibility of motion and can operate the device at arbitrary position, the placement of the supporting unit of the opening and closing part would be located on the side of the operator would have been design choice.

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As to **Claim 4**, Suzuki et al. discloses all recited limitation of independent claim 1, as described above from which claim 4 depends.

- The force feedback (Paragraph 1) apparatus as claimed in claim 1, wherein *the nozzle includes nozzle open/close means for opening or closing in response to occurrence of a jet of the gas or the liquid* (Paragraph 18), and wherein Suzuki et al. does not explicitly disclose a *point of support for opening and closing of the nozzle open/close means is provided on the side of the operator*. However it would have been obvious to one of ordinary skill in the art at the time of the invention to position a point of support for opening and closing unit of the air jet nozzle at any side of the operator. Since Suzuki et al. explicitly discloses that the operator has the flexibility of motion and can operate the device at arbitrary position, the placement of the supporting unit of the opening and closing part would on the side of the operator would have been design choice.

As to **Claim 5**, Suzuki et al. discloses all recited limitation of independent claim 1 or 3, as described above from which claim 5 depends.

The force feedback (Paragraph 1) apparatus as claimed in claim 1 or 3, further comprising *virtual object calculation means for calculating a state of a virtual object in a virtual environment* (Paragraph 5, line 7-8), *to be displayed by virtual environment display means, according to the position or the orientation of the receiver*. (Paragraph 19)

As to **Claim 8**, a force feedback (Paragraph 1) method comprising

- *a step of controlling a jet amount or a jet direction of gas or liquid according to a position or an orientation of a receiver that receives a pressure by the gas or the liquid jetted from a nozzle so as to provide force feedback to an operator, wherein, ,*(Paragraph 5)
- *when the receiver has a concave shape of a diameter D , (Paragraph 12)*
- Suzuki et al. does not explicitly discloses *intervals for placing the nozzles in the jetting means are set such that at least one nozzle exists within a region having a diameter of a constant.times. D . However Suzuki's implicitly discloses intervals for placing the nozzles in the jetting means are set such that at least one nozzle exists within a region having a diameter of a constant.times. D . Because Suzuki et al. discloses of using a concave field so that a wind pressure can be caught efficiently as shown in paragraph 12. This implies that the intervals for placing the nozzle should have a diameter of constant times (D). Given that this placement would obviously allow for efficient capturing of the air blast, therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Suzuki et al. by spacing the jetting nozzles so that at least one nozzle would be in direct proximity to the concave shaped receiving unit so that the wind pressure can be caught efficiently. Because Suzuki et al. suggests using a concave shaped receiving unit as being a more efficient way of coughing air pressure that*

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is coming out of the air nozzle, this will allow a person skilled in the art to space the nozzles apart according to the diameter of concave shaped receiving unit so that at least one nozzle will be under the concave shaped receiving unit.

As to **Claim 9**, Suzuki et al. discloses all recited limitation of independent claim 8, as described above from which claim 9 depends.

Suzuki et al. discloses *the force feedback (Paragraph 1) apparatus as claimed in claim 8, wherein the receiver has a hemispheric shape (Paragraph 12) and* Suzuki et al. does not explicitly discloses *the constant is 0.8*. Suzuki et al. implicitly discloses in paragraph 12 and 81 that the shape of the receiving unit could have different shape. Hence it would have been obvious to one of ordinary skill in the art at the time of the invention to use a concave shaped receiving unit (device) with constant 0.8 or 0.7 or any other value as it would have been design choice, with the motivation to measure a wind pressure in a virtual space and report said pressure measurement to the mobile operator (See Suzuki, paragraph 4).

As to **Claim 10**, Suzuki et al. discloses all recited limitation of independent claim 8, as described above from which claim 10 depends.

Suzuki et al. discloses the force feedback(Paragraph 1) method as claimed in claim 8, *further comprising a virtual object calculation step of calculating a state of a virtual object in a virtual environment, (Paragraph 5, line 7-8) to be*

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displayed by virtual environment display means, according to the position or the orientation of the receiver. (Paragraph 19)

6. Claims 6, 7 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (JP Publication No. 2001-022499) as applied to claim 1-5 and 8-10 above, and further in view of Sigalov (U.S. Patent No. 5,017,770)

As to **Claim 6**, Suzuki et al. discloses all recited limitation of claim 5, as described above from which claim 6 depends.

Suzuki et al. discloses the force feedback (Paragraph 1) apparatus as claimed in claim 5, further comprising, But Suzuki et al. does not disclose *sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. However Sigalov discloses *sound generation control means for controlling an attribute of a sound (column 8 line 14-25 and column 13 line 1-8) , to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver. (Column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8)*

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would

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have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) to create music by dance and movement

As to **Claim 7**, Suzuki et al. discloses all recited limitation of claim 5, as described above from which claim 6 depends.

Suzuki et al. discloses the force feedback (Paragraph 1) apparatus as claimed in claim 5, further comprising, But Suzuki et al. does not disclose *sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. However Sigalov disclose *sound generation control means for controlling an attribute of a sound (column 8 line 14-25 and column 13 line 1-8) , to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. (column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8)and Suzuki et al. does not explicitly disclose *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means*. However Suzuki's implicitly discloses *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means*. Because Suzuki et al. discloses the use of different kind of receiving object (for example, thing seen and built on the operator's 3 hand, an arm and a racket, and hammer) to make it receive virtual contact according the blast reception means 5 to the virtual object 1b at this time) shown in paragraph 30 and 31. This implies that the *shape or a color of the receiver can be changed and measured by the receiver*.

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Given that this virtual object would obviously allow for receiver to be measured and have its shape and color changed. The air blasting receive section detection means 6 always detects the position of the blast reception means 5, and direction. The racket and hammer which are the operator's 3 bodily part and possession thing as an object which attached the blast reception means 5 or make it a part are projected into the virtual space 1 as the virtual air blasting receiving object 1a (Paragraph 32). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Suzuki et al. by so that the air blasting receive section detection means could measure and changing the shape and color of the receiving unit. Because Suzuki et al. suggests using air blasting receive section detection means 6 always detects the position of the blast reception means 5, and direction.

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) to create music by dance and movement

As to **Claim** 11, Suzuki et al. discloses all recited limitation of claim 10, as described above from which claim 11 depends.

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Suzuki et al. discloses the force feedback (Paragraph 1) method as claimed in claim 10, further comprising, But Suzuki et al. does not disclose *sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. However Sigalov disclose *sound generation control means for controlling an attribute of a sound* (column 8 line 14-25 and column 13 line 1-8) , *to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. (Column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8).

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) to create music by dance and movement

As to **Claim** 12, Suzuki et al. discloses all recited limitation of claim 11, as described above from which claim 12 depends.

Suzuki et al. discloses the force feedback (Paragraph 1) method as claimed in claim 11, further comprising, But Suzuki et al. does not disclose *sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. However Sigalov disclose *sound*

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*generation control means for controlling an attribute of a sound (column 8 line 14-25 and column 13 line 1-8) , to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver. (Column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8).*and Suzuki et al. does not explicitly disclose *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means.* However Suzuki's implicitly discloses *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means.* Because Suzuki et al. discloses the use of different kind of receiving object (for example, thing seen and built on the operator's hand or arm, a racket, and hammer) to make it receive virtual contact according the blast reception means 5 to the virtual object 1b at this time) shown in paragraph 30 and 31. This implies that the *shape or a color of the receiver can be changed and measured by the receiver.* Given that this virtual object would obviously allow for receiver to be measured and have its shape and color changed. The air blasting receive section detection means 6 always detects the position of the blast reception means 5, and direction. The racket and hammer which are the operator's 3 bodily part and possession thing as an object which attached the blast reception means 5 or make it a part are projected into the virtual space 1 as the virtual air blasting receiving object 1a (Paragraph 32). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Suzuki et al. by so that the air blasting receive section detection means could measure and changing the shape and color of the receiving unit. Because

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Suzuki et al. suggests using air blasting receive section detection means 6 always detects the position of the blast reception means 5, and direction.

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) means for producing and/or controlling music or the like comprising means to produce radiation signals indicative of position and/or movement of the body

As to **Claim** 13, a force feedback (Paragraph 1) program for causing a computer to function as:

- *virtual object calculation means for calculating a state of a virtual object in a virtual environment, (Paragraph 5, line 7-8)*
- *to be displayed by virtual environment display means, according to a position or an orientation of a receiver that receives a pressure by gas or liquid jetted from a nozzle, wherein(Paragraph 19)*
- *the position or the orientation of the receiver is measured by receiver measurement means; (Paragraph 5, line 4-5)* According to information, including a position of an air blasting receive section detection means to detect a position of this blast reception means, direction, etc.,

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- *jet control means for controlling a jet amount or a jet direction of the gas or the liquid according to the state of the virtual object, or the position or the orientation of the receiver; and, (Paragraph 5). However Suzuki et al. does not disclose the limitation below 'sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver.'* But Sigalov dose.
- Sigalov disclose *sound generation control means for controlling an attribute of a sound (column 8 line 14-25 and column 13 line 1-8) , to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver. (Column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8).*

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) to create music by dance and movement

As to **Claim** 14, Suzuki et al. discloses all recited limitation of independent claim 13, as described above from which claim 14 depends.

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Suzuki et al. discloses the force feedback (Paragraph 1) method as claimed in claim 13, further comprising, But Suzuki et al. does not disclose *sound generation control means for controlling an attribute of a sound, to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. However Sigalov disclose *sound generation control means for controlling an attribute of a sound (column 8 line 14-25 and column 13 line 1-8) , to be generated by sound generation means, according to the state of the virtual object, or the position or the orientation of the receiver*. (Column 8 line 14-25 and column 13 line 1-8 as well as Fig 6 and 8).and

Suzuki et al. does not explicitly disclose *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means*.

However Suzuki's implicitly discloses *identification of the receiver or a shape or a color of the receiver measured by the receiver measurement means*. Because Suzuki et al. discloses the use of different kind of receiving object (for example, thing seen and built on the operator's 3 hand, an arm and a racket, and hammer) to make it receive virtual contact according the blast reception means 5 to the virtual object 1b at this time) shown in paragraph 30 and 31. This implies that the *shape or a color of the receiver can be changed and measured by the receiver*.

Given that this virtual object would obviously allow for receiver to be measured and have its shape and color changed. The air blasting receive section detection means 6 always detects the position of the blast reception means 5, and direction. The racket and hammer which are the operator's 3 bodily part and

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possession thing as an object which attached the blast reception means 5 or make it a part are projected into the virtual space 1 as the virtual air blasting receiving object 1a (Paragraph 32). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Suzuki et al. so that the air blast receiver and detector unit could modify the shape and color of the receiving unit. Because Suzuki et al. suggests the use of air blast receiver and detector means always detects the position of the blast and direction it came from.

Suzuki et al. and Sigalov are analogous art because they are from the common area of computer inter-face via virtual space and also performing music or playing games or doing some type of task using virtual space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine (Suzuki et al. and Sigalov) means for producing and/or controlling music or the like comprising means to produce radiation signals indicative of position and/or movement of the body

Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No. 7,352,356 discloses pressure-based refreshable scanning tactile graphic display and human-computer interface. US Patent No. 6,757,068 discloses a head-worn tracking device that tracks a hand-mounted 3D beacon relative to the head.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENYAM KETEMA whose telephone number is (571)270-7224. The examiner can normally be reached on Monday- Friday 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramesh Patel can be reached on 571-272-3688. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Benyam Ketema /

Examiner, Art Unit 4146

/Ramesh B. Patel/

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Supervisory Patent Examiner, Art Unit 4146